DOCUMENT RESUME

ED 307 239 SP 031 144

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TITLE Research Applications for Teaching (RAFT) Project. Final Report.
INSTITUTION Mississippi State Univ., Mississippi State. Bureau of Educational Research and Evaluation.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE Sep 88
CONTRACT 400-85-1053
NOTE 57p.; For related documents, see SP 031 145-149.
PUB TYPE Reports - Descriptive (141) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Academic Achievement; *Classroom Techniques; Higher Education; *Instructional Improvement; Interaction; Preservice Teacher Education; *Program Development; *Research Utilization; Student Evaluation; Teacher Attitudes; *Teacher Education Curriculum; Teaching Methods
IDENTIFIERS Mississippi State University; *Research Applications for Teaching Project

ABSTRACT

A report is given of the development and progress of the Research Applications for Teaching (RAFT) project, developed at Mississippi State University. Based upon research findings relative to effective teaching and effective schooling, five curriculum modules were prepared and implemented in instruction. In the second year of the project the modules were pilot-tested; during the third year the instructional activities were extended for use with preservice teachers in all areas of teacher education. The modules were planned to develop preservice teachers' competency related to the following areas: (1) cognitive understandings of research findings relative to effective teaching and schooling; (2) strategies for effecting classroom interaction; (3) skills in classroom management; (4) skills in instructional planning and implementation; and (5) skills in both short and long term evaluation of students' academic progress. The project seeks to improve teachers' performance not only relative to understanding research findings on effective teaching and schooling but also to improve the attitudes of teachers toward themselves as teachers and to develop classroom management skills. A series of component checklists is included describing each component in terms of ideal, acceptable, and unacceptable levels of implementation. Attached to the descriptive report is a paper assessing the effectiveness of the RAFT instructional models on developing skills, attitudes, and cognitions of preservice teachers. (JD)

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ED307239

Final Report

Research Applications for Teaching (RAFT) Project

Mississippi State University

Contract No. 400-85-1053

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September 1988

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I. Program Development

An Overview

During the past three years a model program in teacher education has been developed at Mississippi State University through the auspices of Project RAFT (Research Applications for Teaching). Based upon research findings relative to effective teaching and effective schooling, five curriculum modules were prepared and implemented in instruction. The modules were planned collectively by 12 staff members from the College of Education who met more that 150 hours in consultation during the first year of the study. In the second year, the modules were pilot-tested through presentation to preservice teachers at the secondary level. During the third year the instructional activities were extended for use with preservice teachers from all areas of teacher education.

The modules were planned to develop preservice teachers' competency related to the following areas: (1) cognitive understandings of research findings relative to effective teaching and schooling; (2) strategies for effecting classroom interactions; (3) skills in classroom management; (4) skills in instructional planning and implementation for rural youth from widely divergent socioeconomic and ethnic backgrounds; and (5) skills in both short term and long term evaluations of students' academic progress.

Two experienced public school teachers served as consultants to the group planning sessions. In addition, the curriculum modules were reviewed by a panel of six public school teachers and were revised in view of their comments.

This curriculum reform was implemented in response to recent assessments of the problems of American high schools. Most of the national reports in educational reform recommended that the role of teacher training institutions

be examined. Because of tradition and bureaucratic restrictions associated with certification, as well as with the intervention of the state legislature regarding curriculum offerings, needed changes in teacher education have been difficult to implement. The new State Board of Education, following the guidelines of the 1982 Education Reform legislation in Mississippi, approved procedures whereby individual institutions could submit their own plans for teacher preparation. Teacher training institutions having certification by the National Council on Accreditation in Teacher Education (NCATE) can secure approval for certification of their graduates, based upon their own individual programs. Hence, teacher training units now have unique opportunities to re-structure course offerings, delete extraneous material and experiment with new concepts in teacher training. Essentially the boundaries of required numbers of credit hours in specific courses and programs have been lifted. Instead, graduates must demonstrate competencies in teaching which have been mainly derived from the literature on effective teaching and research.

Need for change in programs for training secondary level preservice teachers at Mississippi State University (MSU) had been evident for some time. Little change had been made in these programs since the early 1960's. Little attention has been given to applying research findings on topics such as promoting classroom interactions, classroom management, teacher expectations and reward systems to the curriculum for preparing teachers.

Program Objectives

The overall goals of Project RAFT were to improve the quality of preservice teacher's performance relative to: (1) cognitive understandings of research findings relative to effective teaching and schooling; (2) attitudes

toward themselves as teachers and (3) instructional skills relative to classroom management, handling of discipline problems, classroom interactions, and the planning, implementation and evaluation of instruction.

To facilitate this program, accomplishment of specific objectives was necessary. These objectives were:

1. To establish planning, advisory and review groups composed of faculty from cooperative units involved in training teachers at MSU, representatives of the College of Arts and Sciences who coordinate the content areas of teacher preparation, and public school teachers who work with preservice teachers in their field experiences.
2. To familiarize the advisory groups and staff of the College of Education and cooperating faculty from the College of Arts and Sciences with research findings relevant to effective teaching and schooling and their significance for programs in teacher education.
3. To select teams of staff members from throughout the College to prepare the five instructional modules.
4. To prepare the five instructional modules.
5. To pilot test the use of these instructional modules utilizing videotapes.
6. To restructure the modules after critical review by students, faculty and cooperating public school teachers.
7. To extend access of the RAFT program to other teacher training units in the College and to other sister institutions in Mississippi indicating interest in the program.
8. To field test the effects of the program through evaluation of the competency of novice teachers participating in the program in regular class situations.

9. To report results of the study through monographs, published papers and presentation to scholarly groups.

Specific Procedures

Creating and Maintaining Collaborative Structures

A group of 12 faculty members representing the more active, change oriented individuals from the College of Education were selected for advising, planning and implementing the new curriculum plan. The faculty members were granted credit in the research/creative efforts category of their job descriptions for use in promotion/tenure decisions. This group met weekly for over one year, devoting over 150 hours each to the project in meeting time. In these meetings research findings relative to effective teaching were reviewed. The Mississippi Teacher Assessment Instruments were studied to determine expectations of beginning teachers. A study was made of the National Teacher Examination to determine the objectives of that test. Then, a list of competencies expected of teachers was made. These identified competencies served as source material for the creation of the five modules developed in the RAFT program.

Superintendents in the Starkville City Schools, Oktibbeha and Webster Counties selected six teachers who served as advisory members to the groups. This group reviewed overall plans for the project and made recommendations for program implementation. Two experienced public school teachers met regularly with the faculty implementation group to assist in reviewing plans for the program. In addition, a special committee of six experienced public school

teachers read the curriculum materials and made changes for their restructure.

Dr. James R. Thomson, Jr., director of the project, heading instructional programs for training over 350 staff members from both the University and public schools in the use of the Mississippi Teacher Assessment Instruments, the instruments used to assess teaching competencies for beginning teachers. These instruments were used to collect data for evaluating the effectiveness of the RAFT program for improving instructional skills of the novice teachers. In these two-day training sessions, data on teaching effectiveness as identified by research were communicated to the trainees.

Inservice Training Meetings

Inservice training programs of two hours duration were planned with respective faculties of the Colleges of Education and of Arts and Sciences to familiarize the groups with research findings about effective teaching and effective schooling. One hour presentations were held in each of the respective meetings and, then, faculties were allowed to interact with the RAFT staff. In addition, special care was taken to communicate resulting information from each of the weekly meetings of planning group to the faculty as a whole.

During the pilot study, the faculty members were invited to attend class meetings. Eleven different faculty members did attend sessions and offered written commentaries in their evaluations.

Preparation of Modules

Three staff members from the planning group agreed to prepare the five

modules of instruction planned for the RAFT program. A three month's writing time was scheduled and the materials were prepared.

The first module, What Research Says about Effective Teaching for Promoting Achievement and Positive Attitudes in Students, was written to introduce the preservice teacher to the research base for effective teaching. Particular attention was given to the characteristics of teachers and teaching found in research literature to be associated with achievement and the development of positive attitudes in students. In completing the module, students reflect back on the traits of their most effective teacher. They respond to a battery of instruments to determine whether their personal trait profiles are congruous with those identified with effective teachers. Students also observe the classroom performance of an effective teacher and record their observations on a research instrument. Students are introduced to the basic concepts of educational research and consider how that research on effective teachers is done.

Instruction in this module is interactive in nature. It features much student discussion and active participation.

The second module, Planning for Instruction, was written to assist students to write lesson plans that are effective and interactive. Students are given directions for the preparation of behavioral objectives and for the selection of appropriate instructional methodologies to meet the widely varying needs of preservice teachers in a class. Each component of the lesson plan is discussed and an outline for a lesson plan is given. An example lesson plan is presented.

Students are expected to be able to recognize the domain and level of instructional objectives and to write example objectives appropriate for expected behaviors at all levels of the cognitive, affective and psychomotor

domains. Students prepare a lesson plan in their area of specialization and teach it in simulated conditions. They also do a series of structured classroom observations in which they observe the instructional plans and teaching methodologies of teachers in regular classrooms. Results of their observations are recorded on data sheets included in the appendices on the module. Altogether, the students complete 14 classroom observations.

A major effort is made to assist students to plan lessons which allow for interaction among students. Instruction is given on planning lessons based on inquiry and discovery processes.

In the third module, Developing Classroom Interactions which Signal Effective Teaching, preservice teachers study the major types of classroom interactions which occur between teachers and students and review the research findings showing how these interactions are related to effective teaching. Much effort is spent on describing procedures for developing questioning strategies, the most useful tool the teacher possesses for the development of students' understanding of concepts. Good attending and listening behaviors of teachers are also illustrated. Special interactions and procedural strategies for working with junior high age students are discussed in detail.

The preservice teachers have learning experiences centered around viewing videotapes of teachers with effective interaction techniques. They audio tape classroom interactions in regular classes and classify the teacher-student exchanges similarly to the way researchers do when they study the classroom behaviors of teachers. In simulation, each preservice teacher does an inductive-based presentation in cooperation with a peer group. This simulation is videotaped so that the listening, questioning and attending skills of the presenter may be observed.

The fourth module, Effective Classroom Management: The Basic Element of

Effective Teaching, introduces the undergraduate student to practices of teachers in effective schools which facilitate the climate for learning in the classroom. Used with Canter's materials on assertive discipline, the preservice teacher have opportunity to reflect carefully upon current problems in classroom management in typical public schools.

This module provides instruction in grouping within the classroom and in provision for cooperative learning.

The fifth module, Evaluation: Test Construction and Use, assists the preservice teachers in writing better developed test items to measure the outcomes of instructional objectives. Students are also assisted in the interpretation of results of a student's performance on a standardized test. Students also "trouble-shoot" a real test used by a teacher in their field to evaluate achievement. Careful attention is also given to using alternate methods of evaluation of student behaviors in the affective and psychomotor domains.

Pilot Testing of Modules

During the spring semester of 1986, the modules were pilot-tested with a group of secondary level preservice teachers. From a group of 36 students enrolled in their teaching block courses, 18 were randomly selected for the experimental group. The remaining 18 students in the control group were taught the materials in the traditional curriculum. The traditional curriculum was mainly teacher centered and lecture oriented.

The experimental group met one hour daily for 45 days. They also completed classroom observations in addition to their regular work. Extensive use of videotaped exercises and simulations was made. All classes were taught in an

interactive style, featuring much discussion and involvement. Students had access to a wide array of instructional materials. In contrast, the traditional group had only a textbook for use.

Results of this study showed that the experimental group achieved significantly higher on a special cognitive test covering concepts associated with effective teaching. Later, they took the professional section of the National Teacher Examination and averaged the 55th percentile, whereas the control group averaged the 18th percentile. In student teaching, college supervisors rated members of the experimental group significantly higher on the Mississippi Teacher Assessment Instruments than they did members of the control group.

Revision of Materials

Process evaluations were conducted throughout the pilot study. Instructional materials were revised to fit the recommendations of participating preservice teachers and instructors.

Major revisions were needed in order to make the content area of the instruction fit the time framework allocated. Discussion and classroom interaction are time consuming processes. Lessons had to be trimmed significantly in order for all the work to be completed.

Extending the RAFT Program

Dr. Arnold J. Moore, Dean of the College of Education at MSU, after reviewing data from the pilot study, recommended that the RAFT program be extended for use in all teacher preparation units in the College of Education.

In collaboration, the Dean of the College of Agriculture and Home Economics recommended that preservice teachers and agriculture and home economics also adopt the same instructional program.

Hence, in its second year of operations, personnel in the RAFT program had to modify the program to fit the needs of this enlarging population of students. Now, teachers from the areas of English, mathematics, science, social studies, foreign language, speech communications, library science, art, industrial arts, distributive education, cooperative education, business education, music, physical education, elementary education and special education were to be trained in the program.

It was immediately decided that a professional core of study for graduates from teacher education programs needed to be developed. Methods for teaching such as mathematics, English, science and so forth would be restricted from the core. That is, the core should focus on general skills applicable to all subject areas and all levels of students; and, preservice teachers in all curriculum areas should be given method course(s) to apply teaching technology to their own specific area.

Four instructional units were to be provided. The RAFT materials would serve as the basis of instruction for one division of Core I called Contemporary Perspectives of Education, for three divisions of Core II related to planning, implementing and evaluation of instruction and for one unit of Core III on grouping practices. Finally in Core IV in student teaching, the preservice teachers were to be evaluated on their teaching skills through use of the 14 teaching competencies measured by the Mississippi Teacher Assessment Instruments.

Teachers for these units were to be chosen from throughout the College of Education. Some professors recommended were individuals whose recent

experience had been with teaching graduate studies. Others were beginning professors with much enthusiasm and little experience in teaching. This change in staff necessitated the use of inservice training to update faculty in the use of the research based materials in the RAFT program.

Planning and training activities took one academic year to complete. Meanwhile, the RAFT materials in their revised form were taught to preservice teachers at the secondary level for two semesters. The materials were revised after each teaching sequence.

During the third year of the study, the RAFT materials were integrated into the new core program at MSU and were taught to all eligible juniors who enrolled in teacher education.

Field Testing of Materials

Subjects from the pilot study of the program are now teaching in regular positions. Follow-up studies have been done of their attitudes and perceptions of the effectiveness of their teacher education program. Data show that the experimental group has significantly higher attitudes toward self as a teacher after one year of teaching than did the control group.

Competencies of the preservice teachers trained in the RAFT program have been compared with those in the experimental group. Significant differences indicating that RAFT teachers performed significantly better in the classroom than did members of the control group were found. RAFT teachers also have performed significantly better on the professional test of the National Teachers Examination. They have also scored significantly higher on the Myself as a Teacher Scale, a measure of self concept as a teacher.

Dissemination Activities

Results of the RAFT project have been disseminated to several professional groups. Papers describing the effectiveness of the RAFT project have been disseminated to the following groups:

1. Mid-South Educational Research Association, Mobile, November 1987.
2. Southeastern Region Association of Teacher Educators, April 1988.
3. Annual Meeting of the National Association of Teacher Educators, San Diego, 1988.
4. Mid-South Educational Research Association (Submitted for 1988).
5. Association of Teacher Educators (Submitted for 1989).
6. Mississippi Association of Teacher Educators, Spring 1988.
7. Regional Meeting of the Holmes Group Universities, 1987.

II. Major Issues, Strategies and Collaboration Approaches

The overall thrust of the RAFT program from the initiation of the study was to improve the teaching skills of participating students--to insure that all students would do well on a performance-based test at the end of their student teaching experience. The modules were prepared and presented with that purpose in mind. Though the structure of the instructional program has changed significantly, that purpose still exists. In terms of improving instructional skills, increasing cognitive development about teaching concepts and enhancing self concept as a teacher, the program has been very successful as indicated by data taken in evaluation studies.

This project was completed with full collaboration from faculty throughout

the College of Education and cooperating public school systems. Collaboration with both groups was necessary to establish the content area of the instructional modules and the evaluation of their usefulness.

III. Major Outcomes

The five modules have been prepared and field tested for use with students from all areas of teacher education. They are undergoing continuous revision as they are tested with new groups. Students who study the RAFT materials have done significantly better on the professional division ot the National Teacher Examination and evaluations of classroom performance as measured by the MTAI.

The most impressive improvement in preservice teacher performance has been in the area of classroom interactions. RAFT teachers engage students in classroom dialogues more readily, ask more questions, wait longer to respond to student questions and offer better reward systems for appropriate answers from students. The module still needing more work is the one dealing with classroom management. The section dealing with inappropriate student behavior in class appears to work about 90% of the time. Unfortunately many public school classes have students who exhibit behavior requiring modification or other more stringent techniques of management. Management is a very difficult area for the beginning teacher, particularly in the junior high grades. This module will continue to be modified as it is taught by other instructors.

Improving instructional skills of teachers is really important since that goal is associated with the major purpose of teacher education. Replication data indicate that preservice teachers trained with the RAFT materials do better than do traditionally trained teachers consistently, even when teachers

other than the author of the materials is involved. Similar results have been discovered in follow-up of three groups of students taught in the program.

The materials appear to be effective because of their allowing time for classroom interaction among preservice teachers. The novice teachers have time to plan, to implement under controlled conditions and to reflect on what they have done. The program is also strongly supported by learning experiences in real classrooms in which the students participate.

IV. Implication for Others

The major implication is that preservice teachers at Mississippi State University, when taught using the new curriculum materials, do significantly better in classroom performance and on standardized tests than do their counterparts who study the traditional materials. These results have been consistently derived, even when the classes are taught by different people. The validity for use of the materials at the local level appears secure. No data are available where the modules have been taught in other regions of the country. It is suspected, however, that the module of classroom interactions will be particularly useful in schools desiring to effect more student involvement in lesson presentations. Certainly, the management module is limited in its effectiveness. Better work is needed on classroom control in rooms where serious disturbances occur.

V. Institutionalized Features of Project

In modified format, the curriculum materials have been adapted for use on a permanent basis in all undergraduate teacher education programs at

Mississippi State University. They have been integrated into a four phase professional core. Additionally, students in teacher education will study a methodology course for teaching in their specific major area, two psychology oriented courses, and a foundations-based course. A college-wide committee is responsible for this core curriculum. The activities are directed by the Associate Dean for Instruction.

The materials will continue to be revised. Dissemination activities will now be directed to sister institutions at the state level.

VI. Overall Strengths and Weaknesses

The major problem/asset encountered in the study was the quick integration of the program on a university-wide basis. It was expected to attempt to expand the program for use during its third year in operation. At the Dean's request, the planning for this expansion was updated one year. Consequently, while the materials were actually being developed, staff members had to find time to train other professors in their use and to assist in integrating the modules into the emerging core curriculum.

As already noted, the star piece of the innovation became the classroom interaction materials. Professors from throughout the University requested to attend classes where this instruction took place. As the result, the instructor of this module has been requested to do inservice workshops for the Colleges of Business and Industry, Agriculture and Home Economics and Engineering. He has assisted in inservice programs for training graduate assistants and instructors in the University-wide 1000 course, a class designed for orientation of freshmen to Mississippi State University.

The most important human resources captured have been the professors of the

classes. These individuals were collected from the college as a whole. They were nominated by their peers for their energy, enthusiasm and teaching ability. Men and women who have taught doctoral students most of their lives are now teaching junior level students. Students in elementary education are now being taught by professors from business education. The enthusiasm generated by this infusion of teaching talent has been near phenomenal.

VII. Products and Dissemination

The five modules prepared for instruction have already been described in this document. They are in press for the final time and will be transmitted to the sponsoring agency.

Seven major presentations, already described, have been made. The summary paper offered in this report describe data collected for evaluating the effectiveness of the program.

Presentations are planned for this year at the Mississippi Association of Teacher Educators, the Southeastern Region Association of Teacher Educators, the National Association of Teacher Educators, the Mid-South Education Research Association and the National Association of Curriculum Development. A presentation will be made next month at the national workshop of the Association of Teacher Educators to be made here at Mississippi State University.

Press stories, including newspaper and television, have been utilized to advertise the event locally.

To date, the influence of the RAFT project has been to effect an overall reorganization of the undergraduate curriculum for preparation of teachers at Mississippi State University. Work on the project served as the catalyst for

the development of a four-phase core of studies which has assisted the preservice teachers in improving their classroom performance and their scores on standardized tests significantly. The RAFT Program has enhanced the accountability of Mississippi State University significantly.

COMPONENT CHECKLIST

MISSISSIPPI STATE UNIVERSITY RAFT PROGRAM

I. MAINTAINING PARTNERSHIPS

Component: Planning Cooperative Venture with Public Schools

IDEAL	ACCEPTABLE	UNACCEPTABLE
An Advisory committee composed of public classroom teachers and administrators is formed and meets once each semester for coordination between schools and the university.	An advisory committee composed of public classroom teachers is formed and meets annually for coordination with public schools.	An advisory committee is formed and meets rarely.

Component: Conducting Workshops to Update Instructional Personnel

IDEAL	ACCEPTABLE	UNACCEPTABLE
A. All public school personnel working with preservice teachers in any phase of this study are trained in the use of the MTAI, the major performance assessment instrument.	A. All public school personnel evaluating student teachers are trained in the use of the MTAI.	A. All public school personnel evaluating student teachers are <u>not</u> trained in use of the MTAI.
B. University personnel instructing undergraduates in any phase of their work attend a workshop to review research findings related to effective teaching.	B. University personnel teaching the basic core units including the RAFT materials attend the workshop.	B. Little or no inservice is given to University personnel on recent research findings relative to effective teaching.

Component: Provide Support/Incentive Features

IDEAL	ACCEPTABLE	UNACCEPTABLE
Public school teachers are provided with a tuition-free course in supervision of student teaching and are paid an honorarium for working with each student teacher.	Public school teachers are provided with the tuition-free course or the honorarium but not both.	Public school teachers receive no compensation for working with student teachers.
University instructors receive special credit for innovative/creative effort in their evaluations for work contributed and are featured in publicity releases.	The instructors receive special credit for doing innovative work.	No special recognition is given for work of participating in instruction except class load credit.

Component: Implementation of Program in Public Schools

IDEAL	ACCEPTABLE	UNACCEPTABLE
A. Preservice teachers do at least 20 structured classroom observations prior to student teaching.	A. Preservice teachers do 10 structured classroom observations prior to student teaching.	A. Preservice teachers do unstructured classroom observations prior to student teaching.
B. Preservice teachers present model lessons featuring interaction with real children in regular classrooms prior to student teaching.	B. Preservice teachers present model lessons to children featuring interaction during student teaching.	B. Preservice teachers present only routine lessons to children.
C. Student teachers complete a major instructional assignment (at least one class) for at least 10 of their 12 weeks. They have complete control of their classroom teachers' schedule for at least a week.	C. Student teacher completes a major instructional assignment for at least 10 of their 12 weeks.	C. Student teachers actually teach less than 10 weeks.

Component: Plan Cooperative Evaluation of Educational Progress

IDEAL	ACCEPTABLE	UNACCEPTABLE
Both college and classroom supervisors plan at least two joint evaluation sessions with student teacher to discuss classroom performance relative to MTAI criteria.	Both supervisors plan at least one joint evaluation session with student teacher.	No joint evaluation conferences are held.

II. INSTRUCTIONAL CONTENT

Component: Use of Curriculum Modules

IDEAL	ACCEPTABLE	UNACCEPTABLE
A. Instructor teaches all five modules, completing activities indicated.	A. Instructor teaches all five modules, completing activities as indicated.	A. Instructor teaches all five modules, completing activities as indicated.
B. Concepts taught are reinforced through classroom observation/practice.	B. Concepts are reinforced through use of videotaped classrooms or simulations.	

Component: Sequencing of Materials

IDEAL	ACCEPTABLE	UNACCEPTABLE
Modules are taught in the following sequence in a block of instruction. 1. Research on Effective Teaching 2. Planning for Instruction 3. Managing Instruction 4. Classroom Interaction 5. Evaluating Instruction	Modules are taught in separate units integrated throughout larger instructional plan.	Modules are used only as source materials in instruction.

Component: Developing Concepts to Performance Levels

IDEAL	ACCEPTABLE	UNACCEPTABLE
The theoretical rationale and research base of concepts associated with effective teaching are taught.	The theoretical rational and research base of concepts in modules are taught.	The theoretical rationale and research base of concepts in modules are taught.
Practice is provided in developing each of the 42 task indicators identified as having a research base on the MTAI.	Practice is provided in developing competencies relative to 30 indicators specifically stressed in instructional sequences in simulated instruction.	Provides no actual practice in specific competencies other than those associated with instruction.

III. INSTRUCTIONAL PROCESSES

Component: Using Effective Teaching Strategies

IDEAL	ACCEPTABLE	UNACCEPTABLE
A. Preservice teachers will study the form and effectiveness of direct instruction. They will observe this teaching behavior modeled by their instructor. Preservice teachers will observe time-on-task and classroom interaction behaviors of students taught by direct instruction.	A. Preservice teachers will study direct instruction strategies and see them modeled by their instructor. Preservice teachers will observe via video classroom interaction behaviors of students taught by direct instruction.	A. Preservice teachers will study direct instruction strategies and see them modeled by their instructor.
B. Preservice teachers will observe their own teaching performance and participate in group interactions discussing their performance. The teacher performance will be modified (retaped) to make needed changes.	B. Preservice teachers will observe their own teaching performance and participate in group interactions discussing their performance.	B. Preservice teacher will observe their own performance.
C. Preservice teachers will demonstrate questioning strategies, demonstrating skills in switching from inductive to deductive approaches with facility in the same instructional sequence.	C. Preservice teachers will demonstrate effective questioning strategies for presenting a lesson either inductively or deductively.	C. Preservice teacher will develop skill in use of questions to facilitate learning at different cognitive levels.

Component: Revised Teaching Roles

IDEAL	ACCEPTABLE	UNACCEPTABLE
A. College instructors will become interacters in the learning process, as well as presenters and activity directors. College instructors model use of appropriate reward systems and promote class interactions.	A. College instructors will become interacters in the learning process, as well as presenters and activity directors.	A. College teaching features presentations and activity direction in instruction.
B. Classroom supervising teachers model appropriate classroom behaviors and assist student teachers in improving classroom performances by reflective teaching processes.	B. Classroom supervising teachers model appropriate classroom behaviors and criticize teaching performances of student teachers.	B. Supervisory teachers' behaviors are so restricted that students are not provided models for appropriate behaviors.

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Component: Organizing Cores of Instruction

IDEAL	ACCEPTABLE	UNACCEPTABLE
Concept development and skill building will be organized into a spiral structure where concepts are introduced at the research level. Then, they are expanded through a sequence of four cores developed over a two year interval.	There is vertical integration of scope in concept development; i.e., the concepts are built on each other; but no special effort is made to integrate cores of learning.	There is little integration and sequencing effort made to develop concepts on the foundation of others.

Component: Supervision Becomes Clinical

IDEAL	ACCEPTABLE	UNACCEPTABLE
Both supervising teacher and college supervisor diagnose classroom behaviors and suggest remediation of teaching processes relative to specific performance indicators.	Both supervising teacher and college supervisor diagnose classroom behaviors and suggest remediation of teaching processes relative to specific performance indicators.	Both supervising teacher and college supervisor diagnose classroom behaviors and suggest remediation of teaching processes relative to specific performance indicators.
Student teaching performance is finally graded on basis of specific criteria stressed by specific indicators.	Student teaching performance is finally graded on basis of specific criteria stressed by specific indicators.	Overall student teaching performance is graded on the basis of other criteria than performance based indicators.
Specific indicators are used by preservice teachers to evaluate their own progress toward becoming an effective teacher.		

IV. STUDENT EVALUATION PROCESSES

Component: Use of Appropriate Assessment Tools

IDEAL	ACCEPTABLE	UNACCEPTABLE
A. The following complete battery of instruments will be administered during three intervals of the preservice teachers two years of professional preparation: 1. The MTAI classroom performance assessment instruments 2. The Myself-as-a-Teacher Scale 3. The RAFT Concepts Test 4. The National Teacher Examination 5. The Purdue Student Teacher Opinionaire	A. The following complete battery of instruments will be administered during three intervals of the preservice teachers two years of professional preparation: 1. The MTAI classroom performance assessment instruments 2. The Myself-as-a-Teacher Scale 3. The RAFT Concepts Test 4. The National Teacher Examination	A. The MTAI classoom performance assessment instrument will be administered during three intervals of the preservice teachers two years of professional preparation.
B. At the end of the first year of regular teaching, the beginning teacher will be administered the following instruments: 1. The MTAI instruments 2. The Myself-as-a-Teacher Scale	B. At the end of the first year of regular teaching, the beginning teacher will be administered the MTAI instruments.	B. No instruments will be administered in this follow-up study.

EFFECTIVENESS OF RAFT INSTRUCTIONAL MODULES ON DEVELOPING SKILLS, ATTITUDES AND COGNITIONS OF PRESERVICE TEACHERS

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September 1988

The ability of preservice teachers in secondary education to make the nexus between theoretical or abstract constructs considered in the various teacher training courses and the application of these constructs in the real classroom setting has been a concern for quite some time. It is not uncommon for teacher educators to hear preservice teachers during their student teaching experience lament that they were not prepared for their real classroom events through the professional education courses. The lamentations of preservice teachers are quite often supported by inservice teachers (school supervisors) who challenge the novice teacher to "forget everything learned at the University" because they are now in the real world and those concepts simply do not work.

In addition to the above criticisms, the credibility of teacher education programs has been questioned by those who have made assessments of problems in the secondary schools of America (Boyer, 1983; Sizer, 1984). Many of the national reports, as noted by Clark (1984), have recommended the role of teacher education institutions be significantly reduced in both the preparation and certification of teachers. Allegedly, preservice teachers at the secondary level are not being prepared adequately to meet the challenges and to facilitate the changes needed to help their pupils respond to the expectations and demands of today's society.

Traditionally, teacher education institutions have operated under severe bureaucratic and legislative restrictions. Specifically, teacher education programs in Mississippi have been determined by state legislated curriculum and certicication guidelines. The Mississippi Educational Reform Act of 1982, however, has provided opportunities for more flexibility in teacher education programs.

The long term goals of Project RAFT were to develop five modules of instruction appropriate for training undergraduate students in programs of teacher education for secondary level teachers and to implement them. The effectiveness of these innovations in teacher education were determined by performance of novice teachers on criterion-related tests, the National Teacher Examination (NTE), and on 16 competency areas as determined by 42 indicators on the Mississippi Teacher Assessment Inventory (MTAI). Affective gains of students after participation in Project RAFT were assessed through the use of the Myself as a Teacher Scale.

These modules contained instructional materials designed to use the findings of research literature relative to effective teaching and effective schooling to teach the preservice teachers their fundamentals of instruction. The modules were planned to develop the novice teachers' cognitive understandings of research findings, their strategies for developing effective classroom interactions, their skills in classroom management, their skills in instructional planning and implementation and their skills in both short term and long term evaluations of students' academic progress.

Project Outcomes

A. Major Questions

1. How effective was Project Raft in developing the cognitive understandings of preservice teachers?
2. What impact did Project RAFT have upon the achievement of participating students on the Professional Knowledge Scale of the National Teacher Examinations?
3. What influence did Project RAFT have upon the attitudes toward self-as-a-teacher as measured by the Myself as a Teacher Scale?

4. What impact did Project RAFT have upon the classroom performance of novice teachers?

B. Project Implementation

1. What impact was experienced by cooperating field supervisors after participation in the project?

2. How effective were instructional materials as viewed by preservice and inservice teachers?

II. Program Description

In this study five modules featuring the latest research findings relative to effective teaching were developed and presented to an experimental group. The overall goal of this study was to improve the quality of secondary teachers' performance relative to cognitive understandings of research findings relative to effective teaching, attitudes associated with the teacher's role in public schools and instructional skills relative to classroom management, handling of discipline problems, classroom interactions, and the planning, implementation and evaluation of instruction.

In this instructional sequence special care was given to the development of teachers' skills to implement effective classroom interactions. Skills in questioning strategies for teachers were practiced and student to student diads were formed. The teachers were trained in eliciting student-to-student responses in classroom interactions. Teachers were encouraged to develop concepts inductively and planned questioning sequences where these activities could take place.

III. The Sample

The sample for this study consisted of 120 preservice teachers in the last year of their professional studies at Mississippi State University. The experimental group participated in the study of the modules, when the randomly

selected members of the control group pursued their regular instructional program.

IV. Methodology

After development of the five modules for instruction, they were presented to 60 preservice teachers at the secondary level. They were presented on two occasions with 18 novice teachers in the first experimental group and 42 experimental teachers in the second group. Each of these experimental groups had a control group of an equivalent number of teachers who were randomly selected for comparison purposes. The experimental groups for two successive semesters completed the modules in the regular time interval. They were college seniors and were in the later phases of their studies in teacher education.

During their work with the modules, the students did readings, simulated experiences with videotaping and reflected review of their teaching performance, as well as those of their peer groups.

After completion of the instructional modules, the preservice teachers took the National Teacher Examination. In student teaching, during the semester following their instruction with the modules, the student teachers were assessed on their classroom performance by both their college supervisors and classroom supervisors. Their classroom performance assessment was established as the final evaluation submitted by college supervisors on the Mississippi Teacher Assessment Instruments.

The control group of student teachers participated in regular instruction and had no special training to improve their classroom performances. They also completed the National Teachers Examination and their classroom performances were rated on the MTAI by college supervisors. College supervisors had no knowledge of the type of instructional program pursued by the novice teachers.

Preservice teachers in both the experimental and control groups were pretested with the Myself as a Teacher Scale prior to the initiation of their studies with the modules. They were also posttested at the end of their experience in the classroom.

V. Instrumentation

Four instruments were utilized for data collection. They were the Test of Cognitive Development, the Myself as a Teacher Scale, the Professional Knowledge Scale of the National Teacher Examination and the Mississippi Teacher Assessment Instruments.

The Test of Cognitive Development was developed by the principal investigator to measure knowledge and skills gained by students during their studies of the instructional modules. It consisted of 50 multiple choice items whose content was structured from the behavioral objectives leading the five instructional modules. This test was planned and pretested with a group of similar students prior to the instructional period. An alpha coefficient of .84 was computed for the internal reliability of the test.

The Myself as a Teacher Scale, developed by Handley and Thomson, was employed to measure attitudes toward self-as-a-teacher. This 32-item scale with a Likert-type format asks the beginning teachers to assess their skills as a teacher in reference to an ideal teacher. Technical characteristics of this test have been studied with over 400 preservice teachers. A coefficient of internal consistency, coefficient alpha, of .94 has been established.

The Mississippi Teacher Assessment Instruments were originally adopted by the State Board of Education upon recommendation of the Certification Commission to be used for the assessment of beginning teachers in Mississippi. It is an adaptation of the Georgia Teacher Assessment Instrument.

The State of Georgia developed an on-the-job performance instrument for teacher assessment through a state-funded contract in April, 1976. The University of Georgia created the Teacher Performance Assessment Instruments (TPAI) and field tested them within that state between the fall of 1977 and the spring of 1980. Since that time two revisions have been made on the Georgia instruments but Mississippi elected to choose the 1979 version with only a few changes for the current evaluation instrument.

The MTAI consists of 16 teaching competencies. These were validated as essential for both beginning and experienced teachers by a large number of practicing teachers in Mississippi during a validation study conducted by the Bureau of Educational Research at the University of Mississippi (Cage, 1984).

The Professional Knowledge Scale of the National Teachers Examination measures cognitive understandings expected of beginning teachers in Mississippi. A teacher's cognitive performance on this phase of the NTE at the 15th percentile is required for certification.

VI. Results

What influence, if any, did the RAFT Project have upon the cognitive understandings of the preservice teachers? Data on Table 1 show that preservice teachers who were trained in the RAFT Program did significantly better in cognitive achievement than did a randomized control group. On the Test of Cognitive Development, a criterion-referenced test designed to assess cognitions associated with the five modules taught in the RAFT Program, the experimental group averaged an adjusted mean of 43.42, whereas the control group had a mean of 35.38. These data were significant at the .05 level.

What impact did Project RAFT have upon the achievement of students on the Professional Knowledge Scale of the NTE? After completion of instructional modules, the students took the National Teacher Examination. Students

participating in the training sequences using RAFT materials, on the average, placed above the 50th percentile on the Professional Knowledge Scale of the NTE. Members of the control group, on the average, placed at the 22nd percentile on this same scale. These data show a higher cognitive placement of close to 30 percentile points for students in the new instructional sequence, as related to national norms.

What effect did participating in the RAFT Program have upon the classroom performance assessments of preservice teachers? Data in Table 2 show that RAFT students averaged 176.26 points out of a possible 210 on the 42 indicators of the MTAI. The control group, in contrast, had a mean of 143.41. These data show that students who studied the RAFT Program performed significantly higher on the 42 indicators than did the members of the randomly selected control group.

What impact did Project RAFT have upon the attitudes of participants? Data presented on Table 3 show that RAFT students had an adjusted posttest mean of 132.84 for their attitudes toward self-as-a-teacher, as measured by the Myself as a Teacher Scale. The control group had an adjusted mean of 119.91, significantly lower than the mean for the RAFT group (.01 level).

VII. Discussion of Results

Results of this study show that the Research Applications for Teaching (RAFT) Project has been particularly successful in preparing students to perform better on cognitive skills tests and to implement classroom performance activities more effectively. Higher test scores on the teacher-made test were expected since this examination measures achievement in the specific areas taught in the RAFT materials. Improved achievement, however, on the Professional Knowledge Scale of the NTE was not expected. For years, students in secondary education have scored low on this scale, but after this

instructional sequence the students scored remarkably higher on the professional segment.

Data comparing the classroom ratings of the RAFT and regular teachers on the 42 indicators of the MTAI show that the RAFT teachers were viewed as better prepared for teaching in the classroom than were their counterparts from traditional programs. This better performance probably was keyed by observation of the higher quality interactions with students which occurred in the classrooms where the RAFT instruction was offered.

Nearly three hundred classroom supervisors have now been trained to assess the performance of beginning teachers on the MTAI. This training required at least two days of work on the part of each teacher and had significant impact upon the skills of the supervising teachers as teacher educators.

VIII. Implications for Improving Teacher Education

The RAFT Project has important implications for improving teacher education. Its success with improving the quality of teachers in secondary education has resulted in the program's being integrated into the overall teacher training program at Mississippi State University. Currently all beginning teachers have been incorporated into a four-phase core program which includes all the learning activities taught in the RAFT Program.

The current two-year core program contains more material than initially planned for the training sequences. More opportunities for classroom interactions have been integrated into the training sessions and more time to practice the skill areas have been provided. During this past year the improved performance of these beginning teachers has been enhanced significantly.

Table 1

Comparison of Cognitive Achievement for RAFT and Control Group

Group	N	Adjusted Mean	F
RAFT	60	43.42	
Control	60	35.58	
			6.32*

*p < .05

Table 2

Comparison of Classroom Performance

of RAFT Teachers with Control Group

Group	N	$\bar{X}$	SD	F
RAFT	60	176.26	34.82	
Control	58	143.41	28.74	13.92*

*p < .01

Table 3

Comparison of Attitudes toward Self

as a Teacher for RAFT and Control Groups

Group	N	Adjusted Mean	F
RAFT	60	132.84	
Control	58	119.91	12.38*

*p < .01